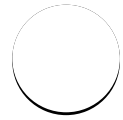


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Animal Sex: How Butterflies Do It

By [Joseph Castro](#) August 02, 2015



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With their brightly colored wings and fluttering flight, butterflies are known and loved the world over. But when it comes to sex, are these insects as nurturing and gentle as they appear to be, or is there a more aggressive side to their mating?

[Thousands of butterfly species](#) exist across the globe, but scientists have only studied the mating behaviors of a few species, said

Antónia Monteiro, a butterfly researcher at the National University of Singapore, whose work focuses on butterflies in the Afrotropical genus *Bicyclus*.

Mating occurs shortly after butterflies emerge from their chrysalises to become adults, but precisely when this happens in the year depends on the individual species. "Each [temperate] species has its own emergence curve," Monteiro told Live Science, adding that you may see butterflies in tropical areas, such as Singapore, year-round. [[Image Gallery: Butterfly Metamorphosis in 3D](#)]

Male butterflies have two main modes to find females. Males of some species fall into the perch category — they sit and wait for a fluttering female to pass by. Males of other species are patrollers, meaning they fly around their territories to actively search for a receptive female.

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The insects will first use their vision to try to identify females of their own species.

For instance, males of some *Heliconius* species in the [Amazon Rainforest](#) will check out any red object. "You can just walk in the forest with a red handkerchief and wave it, and males will come to investigate it," Monteiro said.

Privacy

Butterflies then use scent cues — pheromones — to make positive identifications once they get in close. If a male catches another male in his territory, he may chase it to drive it away, Monteiro said.

Before mating, [butterflies](#) engage in courtship rituals that vary by species. The species that Monteiro mainly studies, the squinting bush brown butterfly (*Bicyclus anynana*), has a particularly complicated mating system, she said.

In their African homeland, *B. anynana* has two seasonal forms — some butterflies emerge in the dry season, while others emerge in the wet season. "One is the offspring of the other," Monteiro said.

A wet season male will chase a female around and try to position himself next to her on a leaf or other substrate. He will then "dance" by creating small wing-flapping movements that progressively get larger, flashing his wings in front of the female's eyes and spreading pheromones on to her antennae.

The female will then decide to mate with the male or fly away, a decision partly dependent on the male's wing pattern — experiments show that female butterflies will not mate with a male whose wing eye spots are blocked, Monteiro said.

During the dry season, these [roles are reversed](#). Males become the choosy sex, and females actively try to court males using the same dance moves as the wet season males.

Though this is the first species this behavior has been identified in, Monteiro suspects many other species also engage in this dual mating system.

Some species, however, are known to have very different mating behaviors.

In the Monarch butterfly (*Danaus plexippus*), for example, males will sometimes conduct [aerial takedowns](#), grabbing females out of the air and mating with them on the ground. On the other hand, male Great Eggflies (*Hypolimnas bolina*) entice females with a ritualized [aerial fluttering display](#).

Whatever the case, copulation occurs with the adults facing opposite directions and their abdomens touching. The male will grasp the female's abdomen with a pincerlike organ called a clasper, and then insert his aedeagus (analog of a penis) into the female's reproductive tract to gradually pass his sperm (or spermatophore) to her.

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